YAMAHA CRW-F1 SERIES

THE SPIRIT OF CD RECORDING

BURNIN' LOVE

DiscT@2

CRW-F1

YAMAHA CD-RW-RECORDING SYSTEM

44 x 24 x 44

CD-R CD-RW CD-ROM

SafeBurn

Advanced Audio MASTER QUALITY RECORDING

DiscT@2 TM

SERVICE YAMAHA SUPPORT

2-year warranty*

Advanced Exchange System**

Toll-Free Hotline

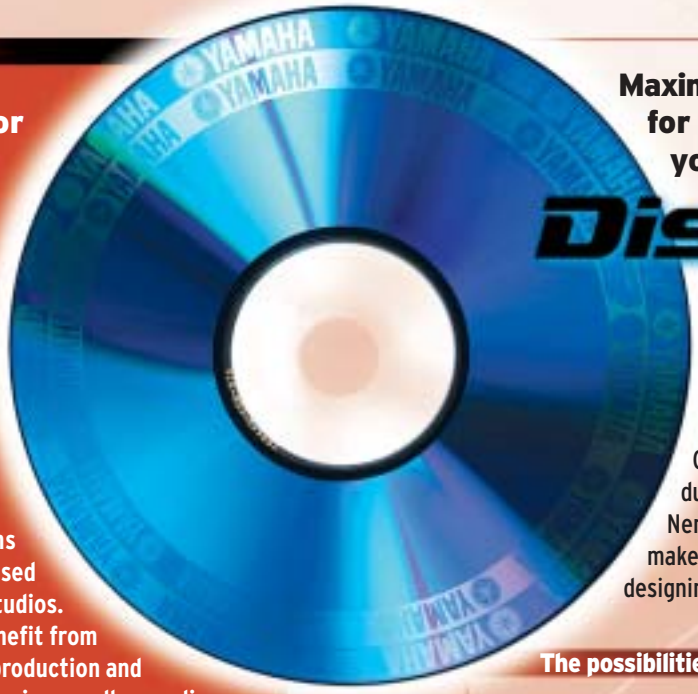
YAMAHA

YAMAHA - The Leading Vendor in the Field of CD Recording

Yamaha has decades of experience in the fields of acoustic and electronic musical instruments and professional audio systems. But Yamaha is also in the know when it comes to the latest CD recording technology: Yamaha developed its first CD recording systems back in 1988 and they were used in professional recording studios. Today, Yamaha customers benefit from this wealth of experience in production and reproduction of sound and music as well as audio and CD recording!

Thanks to in-house development and production of key components, such as chipsets and laser pickups, YAMAHA CD-R/RW drives stand for high-quality CD recording right from the start.

With its CRW-F1 line, YAMAHA is once again emphasizing its pioneering role in this sector.



Maximum freedom of expression for designing and labelling your CDs!

Disc T@2™

"Tatoo" your CD!

Only the CRW-F1 series by YAMAHA lets you burn text and graphics on the un-used storage space of a CD-R Disc. Graphics are freely sizable and reproduced in up to 128 scales of grey. The Nero software included in the package makes creating your Disc T@2-CD as easy as designing a CD cover.

The possibilities of Disc T@2 are many and varied:

- **Table of contents:** Provide your CD with information such as album title, artist, date
- **Promotion:** Burn your corporate logo onto the presentation CD
- **Security:** Mark your CDs with indelible security information
- **Creativity:** give free rein to your fantasy and turn your CD into a work of art!

Y A M A H A C D - R W - R E C O R D I N G S Y S T E M

CRW-F1

44x CD-R 24x CD-RW 44x CD-ROM

Features at a glance:

- **Disc T@2 [disk tæ´tu:]**
- **Advanced Audio Master Quality Recording**
- **44x write speed, 24x rewrite**
  44x reading and high-fidelity audio ripping
- **YAMAHA Q-Max Quality Concept**
- **FULL CAV writing procedure**
- **CD-MRW (CD-Mount Rainier ReWrite)**
- **CD-RW Audiotrack Edit Mode**
- **SafeBurn:**
  Buffer underrun protection
  8 MB buffer
  Optimum write speed control
- **Models:**
  Internal: IDE (ATAPI), SCSI-Converter
  External: SCSI, USB 2.0, FireWire+USB 2.0 Dual-Interface
- **Incl. Software:**
  Nero, InCD, Nero Toolkit, Nero Cover Designer, musicmatch Jukebox (only with models FX, DX and UX) and Roxio Toast (for MAC OS, only with models FX and DX)

Disc T@2™ SafeBurn™ Advanced Audio MASTER QUALITY RECORDING

SERVICE YAMAHA SUPPORT
2-year warranty*
Advanced Exchange System**
Toll-Free Hotline

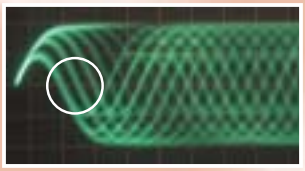
* within Europe
** within EU + Norway, Switzerland and Turkey

Advanced Audio Master Quality Recording

This feature offers optimum sound quality for your self-recorded music CDs!

„The measuring stick is the original", i.e., the Audio Master concept. This function stubstantially reduces the jitters that occur in the audio digital data stream in order to attain optimum sound quality of audio tracks on CD-R discs. This results in audibly improved high- and mid-range brilliance, rich bass reproduction, and convincing spatial acoustics, thus permitting high fidelity reproduction of the original.

When the CRW-F1 series is running in Audio Master mode, pits and lands that are longer than those in normal audio recording mode are used at 1x, 4x or 8x speed. This results in the following memeory capacities for blank CDs: 650 MB – 63 Min., 700 MB – 68 Min., 870 MB – 79 Min. „Smart Media Check" is used to check whether the blank CD is suitable for 1x, 4x or 8x speed in Audio Master Modus.



Audio CD burned as standard

Audio CD burned using YAMAHA Audio Master

The recordings made by this oscilloscope show that the left picture evidences a a substantially less focused eye pattern signal. As rule, the less sharp the signal, the higher the jitter value. The righthand picture, on the other hand, shows a considerably sharper eye pattern signal (see circles) thanks to YAMAHA Advanced Audio Master. The result: substantially improved sound quality.

High Quality and High Speed

44x CD-R Write Speed:
YAMAHA CD-R/RW all use the CAV (Constant Angular Velocity) method, since YAMAHA is convinced that this writing method ensures the best performance when it comes to data transfer at high disk speeds. This method makes it possible to maintain a high level of quality and optimum access speed at the same time. This shows among other things in the outstanding jitter values of CD-Rs recorded using the CRW-F1 and substantially fewer C1 errors.

24x CD-RW Write Speed:
YAMAHA is the first manufacturer in the world to implement a 24x CD-RW write speed. Whether in normal write mode, packet writing/UDF format or CD-MRW (Mount Rainier ReWrite) – fast data rates and high storage capacities speak for themselves, making ordinary floppy disks more and more a thing of the past.

44x Read Speed and Audio Ripping:
This makes it possible to rip a 74-minute audio CD in just under 2 minutes.

Q-MAX: YAMAHA's Quality Concept

Q-MAX is YAMAHA's new quality concept and stands for a CD writing technology that offers maximum quality without compromising speed and even facilitates some exclusive additional functions. All this is made possible by a specially developed chipset: the Yamaha YDC-132-V is the heart of the new CRW-F1 drive generation and controls all of the outstanding Yamaha features and specifications of this series:

- **High-quality full-CAV write method for CD-R/CD-RW/CD-ROM at high speed**
- **Yamaha´s original CAV writing strategy**
- **Full digital optical laser pick-up servo control**
- **DiscT@2**
- **Advanced Audio Master Quality Recording**

SafeBurn

With its SafeBurn technology, YAMAHA has set a new standard in data security. This technology is a three-fold security combination that offers genuine 100% reliability and thus ensures optimum quality for your data when recording CD-R/RWs.

SafeBurn consists of:

Buffer Underrun Protection
For avoiding ruined blank CDs when the flow of data to the recorder is interupted. The laser remembers the last position recorded and continues from there as soon as the flow of data from the source drive resumes.

8 MB Buffer
Ensures constant writing at high speed. The advantage of this generously proportioned buffer is that the built-in SafeBurn buffer underrun protection only kicks in in emergencies, when the internal data flow to the recorder is interrupted.

Optimum Write Speed Control
With this function, the CRW-F1 series automatically selects the optimum speed for the CD blank inserted if the medium is not suitable for high speeds.

CD-RW Audio Tack Processing Mode

The CD-RW is also becoming ever more popular as a data medium for audio data. That is why YAMAHA realized this feature, contained exclusively in CRW-F1, so that you can process audio tracks recorded on CD-RW without having to delete the entire CD. This enables you to add or delete individual audio tracks on a CD-RW – at 24x speed.

CD-MRW (CD Mt. Rainier ReWrite)

CRW-F1 incorporates the new industry standard CD-MRW (CD Mount Rainier ReWrite). This means that sooner or later, floppy disk drives are on their way out, since CD-MRWs finally make it possible to handle a CD-RW like any other removeable data medium. Data is written to the CD-RW at 24x speed by drag & drop.

A Wide Range of Models to Choose from

There are four different model versions available in the CRW-F1 series. The external drives boast an all-new design and include a new „DX" model.

The versions:
Internal:
CRW-F1 – IDE/ATAPI (Ultra DMA support)
SCSI-Converter: The solution for SCSI fans. Just plugging the converter onto the CRW-F1E – IDE/ATAPI drive turns it into a SCSI drive. The advantage: the device can be used flexibly in either IDE or SCSI systems.

External:
CRW-F1SX – SCSI (SCSI-3/Ultra SCSI)
CRW-F1UX – USB 2.0 (compatible with USB 1.1)
CRW-F1DX – FireWire + USB 2.0 Dual Interface

Service

The quality of your recorded CDs isn't the only thing you can rely on: Yamaha's exemplary Customer Service offers 48-hour advance exchange within the two-year warranty period as well as a competent, toll-free hotline.

Delivery Package

The delivery package includes the Ahead recording software: Nero 5.5, InCD 2.0, Nero Toolkit, musicmatch Jukebox (only with external models) and Roxio Toast (for SX, and DX for Mac OS) as well as 1 blank high speed CD-R and CD-RW each, an installation kit, manual, and software instructions.

Nero5.5- Nero suports numerous CD formats and covers the entire spectrum in the area of CD recording. When it comes to recording CDs, there is no better alternative.
InCD- InCD lets you use your CD recorder like a hard disk or a floppy disk drive. It allows you the flexibility of recording data by drag & drop onto the drive letter of the recorder.
Nero Toolkit- The ultimate tool for diagnosing and analysing the CD/DVD drives in your system.
Nero Cover Designer- Create your own CD Covers easily. With Disc T@2 function!
musicmatch Jukebox- Unlimited MP3-Encoding, easy to use, cool design – the best media player currently available.
Roxio Toast- The ultimate recording software for Mac OS. OS X-compatible.

Media Support

The following types of media are supported:

- **540 MB** (63 min.)
- **650 MB** (74 min.)
- **700 MB** (80 min.)
- **870 MB** (99 min. – overburning possible)
- **8cm Media**

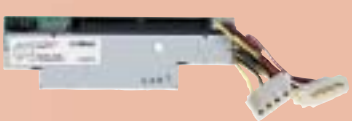
YAMAHA

SPECIFICATIONS

Product name	CRW-F1 Intern E-IDE/ATAPI	CRW-F1SX Extern SCSI	CRW-F1DX Extern IEEE1394 + USB 2.0 / USB1.1	CRW-F1UX Extern USB2.0 / USB1.1
Features	Disc T@2 [disk tæ´tu:], Advanced Audio Master Quality Recording, 44x write speed, 24x rewrite, 44x reading and high-fidelity audio ripping, YAMAHA Q-Max Quality Concept, CAV writing procedure, CD-MRW (CD-Mount Rainier ReWrite), CD-RW Audiotrack Edit Mode, SafeBurn			
Support Format	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, CD-Bridge(Photo CD) Video CD, CD-I, Mixed Mode CD-ROM(CD-ROM+CD-DA), CD EXTRA, CD-MRW			
Writing Modes	Disc at once(DAO), Session at once(SAO) Track at once(TAO), Packet Writing, Advanced Audio Master Quality Recording, DAO RAW96			
Writing Speeds(CD-R)	1x, 2x, 4x, 8x, 16x (CLV) 44x(FULL CAV)			
(USB1.1)			1X, 2X, 4X, 8X(*)	
Writing Speeds(CD-RW)	2x, 4x, 10x, 12x, 16x (CLV)24x (PARTIAL CAV), 10x, 24x (FULL CAV)			
(USB1.1)			2X, 4X, 8X(*)	
Reading Speed	44X (Full CAV)			
(USB1.1)			6x	
Burst Transfer Rate	Program I/O(PIO) Mode4: 16.7MB/sec Multiword DMA Mode2: 16.7MB/sec Ultra DMA Mode2: 33.3MB/sec	Max. 5MB/s synchronous Max. 20MB/s synchronous	Max. 400Mbps Max. 480Mbps USB1.1: Max. 12Mbps	Max. 480Mbps USB1.1: Max. 12Mbps
Access Time	150ms (random)			
Media support	up to 99min			
Data Buffer Size	8MB			
Interface	Enhanced IDE(E-IDE)/ATAPI	SCSI-3(Ultra SCSI)	IEEE1394(FireWire) (OHCI compliant) USB2.0 (EHCI compliant) USB1.1 (OHCI/UHCI Compliant)	USB2.0 (EHCI compliant) USB1.1 (OHCI/UHCI compliant)
Installation	Horizontal			
Disc Loading		Front Auto Loading Tray		
Audio Output (Analog)	Frequency range: 20Hz_ 20,000Hz Output Level: 700mVrms			
Audio Output (Digital)	SPDIF format, Output level: TTL			
Power Consumption				
Write/Read	15W	20W	22W	21W
Stand-by	4W	7W	9W	8
Power Supply	+5VDC+/-5% +12VDC+/-10%	100-240V +/-10% AC		
Dimensions	148.0W 42.6H 198.1D mm	181W x 57.3H x 275D		
Weight	0.9kg	1.7kg		
Accessories	Owner's manual 40-pin IDE cable Audio cable Fastening Screws CD-R blank disc: 1 High Speed CD-RW blanc disc:1	Owner's manual AC adaptor AC cable CD-R blank disc High Speed CD-RW blanc disc	Owner's manual IEEE1394 cable (6P-6P) USB cable AC adaptor AC cable CD-R blank disc High Speed CD-RW blanc disc	Owner's manual USB cable AC adaptor AC cable CD-R blank disc High Speed CD-RW blanc disc
Software	Nero-Burning ROM InCD Nero Cover Designer Nero Wave Editor Nero Toolkit	Nero-Burning ROM Nero Cover Designer Nero Wave Editor Nero Toolkit musicmatch Jukebox Roxio Toast	Nero-Burning ROM Nero Cover Designer Nero Wave Editor Nero Toolkit musicmatch Jukebox Roxio Toast	Nero-Burning ROM InCD Nero Cover Designer Nero Wave Editor Nero Toolkit musicmatch Jukebox
System Requirements:				
Computer (Win)	PC/AT compatible			
Computer (Mac)		Macintosh	Macintosh with built-in FireWire	
OS (Win)	Windows 95 (OSR2 or later) / 98 / 98 Windows 98 Second Edition / Me /Windows 2000 Professional / XP			
OS (Mac)	Mac OS 8.6 / 9 / 9.1 / 9.2 / OS X			
CPU (Win)	Pentium II 300MHz			
CPU (Mac)	Power PC G3/300MHz			
RAM	64MB (Windows XP: 128MB)			

We reserve the right to change the specifications.

(*) Buffer Underrun Protection needs to be activated.
For USB1.1 Users:
8x writing speed with Buffer Underrun Error Protection is recommended to maximize writing performance.
Due to the limitations inherent in the USB1.1, actual transfer rate is approximately 6x(W) 6x(RW) 6x(R).



SCSI-Converter
(simply attaching the converter transforms the IDE/ATAPI drive into a SCSI drive, available separately)

CRW-F1 ENG